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ABSTRACT

The All Indian Pueblo Council and the University of New Mexico (AIPCUNM) jointly developed a program of on-site instruction, counseling, and advisement for Pueblo adults pursuing the Associate of Arts degree and the Bachelor of Science degree in Elementary Education. The expectation was that Native American children would learn more and feel better about themselves and school if they were taught by adults from their own community, who understood their needs and could communicate effectively with them. Serving 19 pueblos throughout northern and northwestern New Mexico, the program was aimed at developing the facilitative teaching component, composed of 3 major factors: (1) one's self-awareness: (2) interpersonal communication skills: and (3) one's recognition and use of modeling. Nineteen AIPC-UNM graduates participated in the 1980 evaluation study, conducted by an independent evaluator and using control groups from the same Pueblos, which analyzed patterns of interaction between teachers and students in the classroom, and results of questionnaires measuring students' self-concept and attitudes toward school. Findings indicated that students of AIPC-UNM graduates had significantly more positive attitudes and higher self-concepts than equivalent control groups, and that AIPC-UNM graduates conducted classes in ways expected to facilitate students' emotional and intellectual growth to a greater degree than the non-AIPC group. (JD)

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# ALL INDIAN PUEBLO COUNCIL

## On-Site

## Teacher Education Program

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Proposal to the Joint
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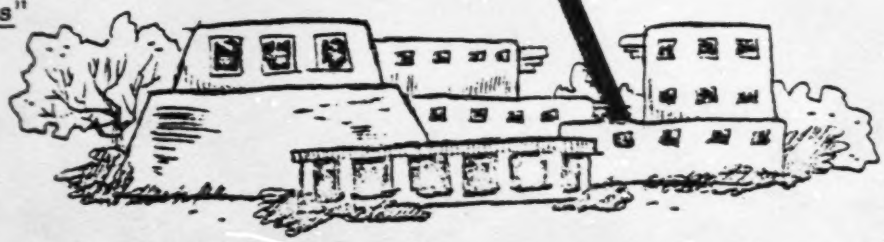

Program Area: Indian Education; On-Site Teacher Education

Project Title: All Indian Pueblo Council-University of New Mexico
Teacher Education Program
Department of Elementary Education
University of New Mexico

Developed by: All Indian Pueblo Council
P. O. Box 6507 - Station B
Albuquerque, New Mexico 87197

Source and Level of Funding: U.S. Department of Education
Office of Indian Education $242,000
(FY '79 - '80)

Years of Development and Intervention: 1973-1980

A. Brief Description of Intervention

The All Indian Pueblo Council (AIPC) has undertaken a joint effort with the University of New Mexico (UNM) to educate and certify Pueblo adults as teachers and as paraprofessionals in the field of teaching. The program provides on-site instruction, counseling, and advisement for persons pursuing the Associate of Arts (AA) degree and the Bachelor of Science (BS) degree in Elementary Education. Were it not for the on-site aspect of the AIPC-UNM program, most of the enrolled students would not have the option of taking college-level courses, since only two of the 19 Pueblos in New Mexico are within commuting distance of the University of New Mexico (in Albuquerque). Since the inception of the AIPC-UNM Teacher Education Program, the AIPC-UNM Project has maintained that the Pueblo children should be the ultimate beneficiaries of the program. That is, expectations have been that Native American children would learn more and feel better about themselves and school if they were being taught by adults from their own community--adults who understood their needs and could communicate effectively with them. The fact that the adults participating in the program have benefited is a matter of record; most would not otherwise be afforded the opportunity of entering a professional career.

Context and Students Served

The 19 Pueblos are spread throughout Northern and Northwestern New Mexico. In these 19 communities there are some 35 schools that serve more than 8000 Pueblo children. Community needs assessments have indicated

there is concern over: the lagging achievement scores of Native American students (found from the early elementary grades on), the dropout rate for high-school age Native American students, and the still-low proportion of Pueblo community teachers who are themselves Native Americans. Pueblo educators have seen the need for teacher training geared to the specific problems and cultural contexts of the classes in Pueblo schools. Other suggestions from the communities have requested bilingual and bicultural curricula and receptiveness of input from the Pueblo community. It is these concerns that the AIPC has indicated are responsible for their development of the goals of the AIPC-UNM Teacher Education Program.

Program Description

The structure of the curriculum of the AIPC-UNM Program is determined by the UNM College of Education and the Department of Elementary Education. The delivery of that curriculum is in large part determined by the specific objectives of the AIPC-UNM program. The On-site instructors consist of regular faculty members, part-time instructors, and some of the AIPC-UNM staff who are also qualified to teach Elementary Education courses.

The stated goal of the AIPC-UNM program is to graduate teachers whose skills reflect the capacity to be "facilitative" in their teaching. The notion of teaching as a process of facilitation is the major component in the AIPC-UNM model of effective teaching. Consideration is also directed toward the individual's (1) knowledge of content, (2) knowledge of curriculum, (3) knowledge and application of child development, and (4) knowledge of human dynamics.

The facilitative teaching component is composed of three major factors: (1) one's awareness of self, (2) interpersonal communication skills, and (3) one's recognition and use of modeling. Each of the three factors are conceived of as serving as cause and effect for the others. See Figure 1 below.

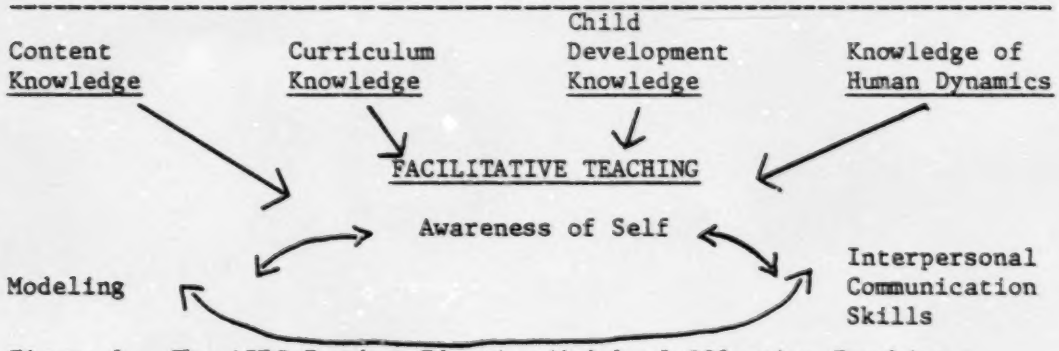


Figure 1. The AIPC Teacher Eduation Model of Effective Teaching

The objective of the AIPC-UNM program is to employ on-site instructors who will teach the prospective Native American teachers how to be facilitative in their teaching. To this end, it is expected that the on-site instructors will themselves teach in a facilitative fashion.*

Under the "Awareness of Self" component of the model of facilitative teaching, the goal is that the teacher will feel a high degree of acceptance and respect for his/her self, will possess an awareness of his/her feelings, values, and life roles and will be aware of discrepancies between the "real" and the "ideal" self. Many of the concepts subsumed by the "Interpersonal Communication Skills" component are Rogerian in nature: the ability to empathize; to develop rapport; to accept, understand, and be attentive; to be able to make self-disclosures; and to be genuine (self-congruent). Under "Modeling", teachers are expected to be aware of the "social learning" (learning by observing a model) that goes on in the classroom. One example of how modeling could work is that teachers who exhibit pride in their Native American culture might be expected to have students with relatively high self-esteem. All things considered, <u>if</u> the model is being translated into practice, we would expect some benefits to accrue to the <u>students</u> of the AIPC-UNM graduates.

To quote from an earlier report on this project:

"What has evolved is a model (of effective teaching) that incorporates not only concern about cognitive knowledge but also concern about the learning atmosphere, interpersonal relationships, and the personal self the teacher brings into the classroom. The belief is that the social, emotional, and physical, as well as the intellectual, must be recognized as affecting the learning process, and that the cognitive cannot be isolated from the affective."

Honahni, 1979
Appendix J

It should be noted that there is also some basis in research for the expectation that student affective outcomes can be influenced by the manner of teaching those students. Studies by Stallings and Kaskowitz (1974) and Bennett (1976) have suggested that some teaching behaviors related to classroom climate and interpersonal communication could contribute to more positive student attitudes and higher levels of motivation.

It was from the stated objectives and expected outcomes of facilitative teaching that the hypotheses for this evaluation were derived: students in classes of AIPC-UNM graduates should have higher self-concepts and more

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* Data collected by the AIPC-UNM project Impact Analyst confirm this expectation: on course and instructor evaluation forms, 89.2% of the students in the "Professional Block" program agreed with the statement that "The instructor served as a good model for teaching."

positive attitudes toward school than a comparable group of students in classes of non-AIPC-UNM graduates. It was also expected that corresponding differences in classroom processes would be found between the two groups of classes.

B. Evidence of Effectiveness

In December, 1979, the All Indian Pueblo Council at the University of New Mexico contracted with Dr. John Crawford for the evaluation of their teacher education program. The AIPC-UNM Staff were not involved in the selection of the sample, nor in the formulation of hypotheses, in the data collection, analyses, nor in the reporting of results. Crawford was supplied with names and addresses of graduates of the AIPC-UNM program and was told that comparisons with a matched control group were desirable as part of the evaluation design. From this point on, the selection of the sample of AIPC-UNM graduates and the control group was handled entirely by the independent evaluator. The teachers were contacted in January and February of 1980, and data collection took place between March and late May, 1980.

Sample Selection

As of January, 1980, the AIPC-UNM Teacher Education Program has graduated a total of 36 Pueblo adults with Bachelor's degrees in Early Childhood Education. Of this number, 13 were not eligible as participants in the present evaluation either because they were in positions other than Head Teacher (i.e., were Directors of programs, assistant teachers, or aides, etc.) or were teaching in situations different from the majority of the AIPC-UNM graduates (they were reading specialists or were teaching in classes not composed of Native American children).

Nineteen of the twenty-three eligible AIPC-UNM graduates volunteered to participate in the evaluation study. Those teachers of students in the first grade or beyond (first through third grades) were told that the evaluation would involve the administration of a student questionnaire assessing attitude toward school and self-concept, in addition to the observational data that would be collected in all classes. Permission to administer the inventory to students was obtained in all primary grade classes except for two, at one school where there was considerable concern over the use of any instructional time for the purpose of testing.

Since it was not possible to randomly assign teachers to the groups being compared, an "equivalent groups" design was employed (termed the "Posttest-Only Control Group" design in Campbell & Stanley, 1963). With this design, a control group was selected to "match" the group of AIPC-UNM graduates on as many relevant variables as possible. The primary means for obtaining the required equivalence between the two groups was to select control group teachers from the same Pueblos that the participating AIPC-UNM graduates were teaching in. The nine control group

classes came from the three Pueblos that had the largest numbers of AIPC-UNM graduates participating in the evaluation. Those three Pueblos accounted for 37% (7 of 19) of the AIPC-UNM graduates participating in the evaluation. For the analyses of student outcomes (self-concept and attitude) the three control group classes came from the same Pueblos as five of the seven classes of the AIPC-UNM graduates. Overall, ten of the 19 Pueblos in New Mexico had teachers involved in the evaluation effort.

By selecting the control group classes from the same communities as the classes of AIPC-UNM graduates, we should be assured a high degree of equivalence on relevant student variables such as socioeconomic status and level of achievement. It has been demonstrated that these variables are relevant to educational outcomes and are also relatively homogeneous within communities. It was also determined (post hoc) that no significant differences existed between the control group and the AIPC-UNM graduates on number of years of teaching experience nor on the teachers' rating of their (and their aides') frequency of use of the students' native language (F-ratio < 1.0 for both variables). Table 1 below shows the sampling design and gives the N of classes (teachers) at each grade level.

Table 1. Sampling Design and N of Teachers

| | Grade-Level | | |
|---|---|---|---|
| | Headstart | Kindergarten | Primary |
| AIPC Graduates | N=5 | N=5 | N=9 |
| Non-AIPC Graduates | N=4 | N=2 | N=3 |

Headstart classes have students in the three to five-year old age range, Kindergarten classes are for 5-6 year old children, and the Primary - grade classes are made up of first through third graders (ages 6-9) in this study. This design allows the calculation of grade effects and interactions between grade-level and AIPC vs Non-AIPC. In this report we focus on the group differences between AIPC and Non-AIPC classes, since those analyses are most pertinent to questions concerning program effectiveness.

All of the teachers who participated in the group of AIPC-UNM graduates were Native Americans. Of the nine control group classes, 6 were taught by Native Americans and three by Anglos. One of the three classes taught by Anglo teachers was kindergarten, and the other two were primary grade classrooms. The object of the evaluation was the teacher education program, not the ethnicity of the teacher. Accordingly, the teacher's cultural back-

ground was not considered as an additional independent variable in the design. We will note, however, that for kindergarten and primary grade classes, the teacher's ethnicity is somewhat confounded with whether or not she graduated from the AIPC-UNM program. This confounding should not cause problems of interpretation, however, since the stated goal of the AIPC-UNM on-site program is to provide an education to Native American adults to enable them to teach in their own Pueblos. The fact that some of the comparison group teachers were non-Native American reflects the fact that many of the teachers in New Mexico Pueblos are not Native Americans.

## Instruments

The data analyzed and reported here concern: (1) patterns of interaction in the classroom between teachers and students, and (2) student scores on pencil-and-paper measures of self-concept and attitude toward school. Observational variables were assessed with instruments recently developed and widely used in research on teaching: The Brophy-Evertson Dyadic Interaction Analysis System (Brophy and Evertson, 1976) and the Classroom Observation Scales (Emmer, 1970). These instruments measure many different dimensions of classroom processes and of teacher-student interaction. The student inventory was made up of two measures: Coopersmith's (1967) Self-Esteem Inventory and the Quality of School Life measure (Epstein and McPartland, 1976). All instruments used in this evaluation have been employed and validated in several other studies in addition to the original validation research (for example, see Stallings and Kaskowitz, 1974 and Crawford, Gage, Corno, Stayrook, and Mitman, 1978). All the observation data and the student attitude and self-concept data were collected by the independent evaluator.

It had been originally planned to collect and analyze student achievement data also, but this did not prove to be feasible because school administrators did not favor the prospect of the evaluator administering his own achievement test when they were all already committed to a statewide achievement testing program. While the school administrators <u>did</u> indicate willingness to give access to their achievement data, the time at which they would receive their test scores was too late for those data to be included in this report.

## Claims of Effectiveness

The evidence of the program's effectiveness will be presented for two areas: (1) student attitude toward school and student self-concept, and (2) patterns of teacher-student interaction in the classroom. Specifically, the hypotheses are:

1. That students in classes of graduates of the AIPC-UNM Teacher Education Program would have more positive attitudes toward school and

higher self-concepts than control group classes, and

2. That the interactions between teachers and students would vary in some consistent and interpretable pattern according to whether or not the teacher graduated from the AIPC-UNM program.

Claim of Effectiveness 1

As indicated earlier (under "Program Description"), past research and the objectives and expectations of the AIPC gave rise to the hypotheses that students of AIPC-UNM graduates should exhibit relatively high self-concepts and attitudes toward school. The selection of control group classes from within the same Pueblos as the classes of AIPC graduates was the major step taken to attain comparability of student populations.

In mid to late May of 1980, Dr. Crawford went to the seven 1st through 3rd grade classes of AIPC-UNM graduates and the three comparison group classes in the primary grades and administered the measures of self-concept and attitude toward school. No attempt was made to measure these student characteristics in classes younger than first grade. Twenty-seven of 161 student inventories were not analyzed because they were judged as reflecting poor student understanding of the directions and/or of the purpose of the inventory. About three-fourths of those twenty-seven were first graders. Therefore the N of students entering these analyses was 134 (average of 13.4 per class).

Since students completed the questionnaires and since student characteristics were being measured, the student appears to be the appropriate unit of analysis. However, we are also interested in the differences between classes since the class is the "collective" assigned to and taught by each teacher (and, the teachers were the ones who either went through or did not go through the AIPC-UNM program). Accordingly, methods recently developed by Cronbach, Deken, and Webb (1976) were used which permit the use of the student as the unit of analysis in examination of between-class (or, between-teacher) questions. The process involves assigning each student the mean for his or her class, and then proceeding with the inferential analysis with the student as the unit of investigation. The means, standard deviations, and inferential test results are given in Table 2.

The number of students was 87 in the classes of AIPC-UNM graduates and 47 in the group of control group classes. Because tests of homogeneity of variances indicated variances were not equal (probably due to the different sample sizes), the t-test that uses separate variance

estimates for the two groups was employed.*

Table 2. Results for Measures of Student Self-Concept and Attitude toward School

| Variable | AIPC Graduates | | Non-AIPC Graduates | | | |
|---|---|---|---|---|---|---|
| | $\bar{X}$ | SD | $\bar{X}$ | SD | t | p |
| Self-Concept | 9.53 | 2.07 | 8.81 | 0.88 | 2.81 | .003 |
| Attitude | 3.47 | 1.12 | 2.85 | 0.13 | 5.09 | <.001 |

Table 2 indicates that we can state with more than 99% confidence (p-values are less than the .01 level of significance) that the means for the children in classes of AIPC graduates exceed the mean scores of children not in classes of AIPC graduates. Using the standard deviation of the total group, the effect size (Cohen, 1977) for self-concept was .40 and was .65 for the attitude measure. Effect sizes of .50 are usually taken as indications of a "medium effect." Effect sizes were developed as measures of educational significance not dependent on statistical significance. For the present data, both perspectives--statistical significance and effect size--demonstrate the non-trival differences between the two groups being compared.

Claim of Effectiveness 2

Classroom processes are complex phenomena subject to a variety of influences. The patterns of teacher-student interaction can depend on the teacher's attitudes or on student characteristics (Brophy, Evertson, Anderson, Baum, & Crawford, 1980) as well as on the type of teacher education, and other factors such as school, district, and statewide policies and mandates (as discussed in Crawford, et al. 1978). Rather than specifying hypotheses for individual, discrete measures of classroom processes, the evaluator expected that if there were systematic differences in the way that AIPC vs non-AIPC graduates conducted their classes, these differences would emerge in a pattern of observational variables that

* Also, subsequent analyses with the class as the unit of analysis agreed in direction and magnitude with the group differences reported here, though the differences were not statistically significant because of the small sample size (total Number=10)--p-values were .345 for Self-Concept and .111 for Attitude.

would fit together consistently and be interpretable with regard to other empirical results. More than 30 variables were derived from the observational systems used in the present evaluation. Results are presented and discussed below for the ten measures that were marginally or statistically significant.*

The operational definitions of the observational variables are indicated below:

Task Orientation: a rating of the degree to which the teacher focuses on the task at hand; time spent giving directions, dealing with procedural matters, etc. is not "high" task-oriented activity.

Withitness: defined as the teacher's awareness of behavioral problems and communication of that awareness to the students.

Passivity: a rating of the degree of student involvement (or non-involvement) in the prescribed classroom activities; "high" passivity may be indicated by students sitting at their desk, eyes averted, not working on what they are supposed to be working on.

Attentiveness: a rating of the proportion of the class displaying "attentive" behavior—they are paying attention to the teacher or are working with assigned workbooks, etc.

Proportion of Teacher Afforded Contacts that were Long: computed by dividing the number of "long" (more than a short phrase or sentence) contacts by the total number of private contacts initiated by the teacher.

Proportion of Teacher Afforded contacts that involved Criticism: Computed by dividing the number of times the teacher used a critical comment (e.g., "You can do better than that!" or "You didn't do your homework, did you?") by the total number of private contacts that were initiated by the teacher.

Proportion of Teacher Afforded Contacts that involved Procedural-Activities: computed by dividing the number of procedural-type contacts (such as, "get your paper ready" or "go sharpen your pencil") by the total number of private contacts that were initiated by the teacher.

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* For these analyses, with N of only 28, an alpha-level of .10 was considered appropriate. The F-ratios in Table 3 come from the main-effect source for AIPC vs Non-AIPC in the 2-way, AIPC by Grade-level ANOVAS.

Proportion of Behavior Management Contacts involving Error: Number of "Errors" is the number of times the teacher overreacted, or targeted the wrong child for discipline, or waited too long before taking action; this number divided by the total number of behavior-related contacts yields the proportion.

Proportion of Behavior Management Contacts involving non-verbal Negative behavior: computed by dividing the number of times the teacher used some non-verbal action (e.g. squeezing the student's arm) as a discipline measure by the total number of behavior-related contacts.

Proportion of all Interactions involving Public Student Initiation: computed by dividing the number of times the students call out a comment or question in the whole-class setting by the total number of teacher-student interactions.

Table 3. Results for Classroom Observational Variables

| Variable + | AIPC Graduates | | Non-AIPC Graduates | | | |
|---|---|---|---|---|---|---|
| | $\bar{X}$ | SD | $\bar{X}$ | SD | F | p |
| 1. Task Orientation | 4.26 | .79 | 3.50 | 1.15 | 4.519 | <.10 |
| 2. Withitness | 3.24 | 1.22 | 2.56 | .92 | 2.064 | .10<p<.20 |
| 3. Passivity | 1.82 | .63 | 3.17 | 1.15 | 27.698 | <.10 |
| 4. Attentiveness | 4.05 | .74 | 3.28 | .94 | 8.089 | <.10 |
| 5. Proportion of Teacher Afforded Contacts that were Long | .30 | .15 | .20 | .14 | 2.706 | .10<p<.20 |
| 6. Proportion of Teacher Afforded Contacts that involved Criticism | .006 | .02 | .019 | .04 | 2.300 | .10<p<.20 |
| 7. Proportion of Teacher Afforded Contacts that involved Procedural Activities | .39 | .16 | .47 | .24 | 2.192 | .10<p<.20 |
| 8. Proportion of Behavior Management Contacts involving Error | .016 | .04 | .047 | .10 | 2.085 | .10<p<.20 |
| 9. Proportion of Behavior Management Contacts involving Non-verbal negative behavior | .019 | .05 | .003 | .01 | 2.025 | .10<p<.20 |
| 10. Proportion of all Interactions involving Public Student Initiation | .07 | .05 | .11 | .09 | 1.799 | .10<p<.20 |

+ The first four variables in this table are five-point rating scales; the remaining six are proportion measures formed from frequency counts.

Table 3 does demonstrate a relatively consistent pattern of results, if not a large number of highly statistically significant findings. With one exception, all the process differences are in the direction that favors the AIPC-UNM group, if "effective teaching" is considered (and defined by prior research) as consisting of behaviors found to contribute to more learning and/or more positive affective outcomes. Behaviors known to contribute to greater cognitive learning are: more task-orientation (AIPC-UNM was higher); more student Attentiveness (AIPC-UNM higher); more private Teacher-Afforded contacts that were long (AIPC-UNM higher); fewer procedural-related Teacher-afforded contacts (AIPC-UNM lower); fewer behavior-related contacts involving teacher error (AIPC-UNM lower); and fewer public Student Initiation of contacts (AIPC-UNM lower). Behaviors thought to reflect a more positive emotional climate and more effective interpersonal communication in the class include: greater withitness--defined by Kounin (1970) as the teacher's accurate awareness of behavior problems and the communication of that awareness to the students (AIPC-UNM higher); less student Passivity--i.e., more involvement in class activities (AIPC-UNM lower on passivity); and, less criticism--as in the proportion of Teacher-Afforded contacts involving criticism (AIPC-UNM lower).

The one variable that showed mean differences in a direction opposite from what would be expected, given the nature of the facilitative model of teaching propounded by AIPC, was the measure of the proportion of Behavioral contacts involving the teacher's use of some non-verbal negative behavior. The most extreme example observed was a teacher taking a child sternly by the arm and perhaps giving him a shake in the process of moving him to a different seat. This finding could be spurious; in any case, it was a relatively infrequent occurance for both groups of teachers, being observed in 1.9% of all behavior management interactions in the group of AIPC-UNM graduates, and .3% of all behavioral interactions in the group of non-AIPC graduates.

This investigation of classroom processes is beset by the same difficulty that applies to much of the field of research on teaching--seldom do the available resources and/or the number of participants allow the collection of data on a large enough sample to insure the the detection of an effect if it is there. The approach here has been to boost the power of these N of 28 analyses by considering p-levels of .10 or less as significant and p between .10 and .20 as "marginally" significant. Ten out of 31 variables satisfied these criteria--67% more variables than would be expected by alone (6 of 31). The burden of proof should be placed on the consistency of the pattern of results. Here, it can be said that the preponderence of the evidence ( 9 out of 10 variables) indicates that the group of teachers who graduated from the AIPC program do conduct their classes in ways expected to facilitate the attainment of both cognitive and affective student outcomes. Furthermore, the direction of the mean difference comparisons with a control group

for the observational measures is the same as the direction for the group differences found on both of the student measures that were taken--attitude toward school and self concept.

C. Controls for Internal Validity

Attempts to control for threats to the internal validity of the evaluation study are discussed below.

1. History effect--data were collected in classes of AIPC-UNM graduates and the control group during the same time period; all the Pueblos with control group participation also had teachers in the AIPC-UNM Graduates group. Both groups should be subject to similar external forces.

2. Maturation effect--the use of a matched control group should limit any maturation effect. Both groups had equal opportunities to mature during the time the evaluation was conducted.

3. Testing effect--any testing effect would be equally strong for each of the two groups.

4. Instrumentation--all measures had been used extensively in prior research and had been demonstrated as sufficiently reliable and valid.

5. Statistical regression--no teachers were selected on the basis of any extreme scores.

6. Mortality--no teachers dropped out of the study. The only student data not analyzed was for children whose responses (e.g., all answers marked "yes") indicated lack of comprehension or lack of willingness to comprehend.

7. Selection effect--Although random assignment to groups was not possible, the process of selecting control group classes from within the same Pueblos that had the most participants in the AIPC-UNM-Graduates group should insure equivalence of groups. Groups of students within the same Pueblo will be comparable in their socioeconomic status, degree of bilingualism, and other relevant background variables generally considered to be of education significance. As noted earlier, there was some confounding of teacher ethnicity with AIPC vs non-AIPC. This should not cause major problems because the rival hypothesis suggested (that race is the causal agent, rather than the type of teacher education program) it itself consistent with the rationale, justifications, and aims of the AIPC-UNM Teacher Education Program--that is, to educate and certify Pueblo adults as teachers for their own communities.

8. Selection--Maturation interaction--as stated above (in nos. 2 and 7), it is believed that both section and maturation effects have been adequately controlled.

D. External Validity Considerations

Although the AIPC-UNM Program was developed specifically for and by Native Americans in Northern New Mexico, the program, or a derivative of the program, could have a broader applicability. With appropriate revisions of the content or models underlying the AIPC-UNM program, it could be exportable for use with any culturally distinct group that is also geographically isolated from the nearest centers of higher education.

E. Cost for Adoption & Maintenance

In Fiscal Year 1976, costs were:

| | Installation | Subsequent Years* |
|---|---|---|
| Teaching Personnel | $ 52,000 | $250,000 for 4 years |
| Administrative Personnel | $ 42,000 | $200,000 for 4 years |
| Travel, Materials, Communication | $ 35,000 | $155,000 for 4 years |

F. Summary and Conclusions

While all or almost all investigations of educational issues exhibit some aspect of internal validity controls with less-than-perfect control of possible rival hypotheses, the Crawford evaluation of AIPC appears to present about as convincing a picture as could be expected concerning the program's effectiveness. The findings indicated that:

1. Students in classes of AIPC-UNM graduates have significantly more positive attitudes toward school and significantly higher self-concepts than an equivalent comparison group of students in classes of teachers who did not graduate from the AIPC-UNM on-site Program.

2. Patterns of teacher-student interaction in the classroom were found (on 9 of 10 variables) suggesting that teachers who graduated from the AIPC-UNM program did conduct their classes in ways expected to facilitate their students' emotional and intellectual growth to a greater

*Operation expenses did not decrease in years subsequent to installation because, for this particular program, services were expanded (offered to more students) during those subsequent years.

degree than the non-AIPC group.

One weakness of the present study is that it was not possible to collect and analyze data on student achievement in the classes of the two groups. Based on correlations from other research (e.g. Brophy and Evertson, 1976; Stallings and Kaskowitz, 1974; and Crawford, et al., 1978) we could predict that the group differences observed in this study on measures like self-concept and on classroom processes related to student "time-on-task" should be associated with group differences on achievement. The direction of these predicted achievement differences would favor the group of AIPC graduates' classes. This issue cannot be resolved with any certainty without actually analyzing the achievement data, however.

In summary, the AIPC-UNM program appears to be effective and can be disseminated. The program has well-considered conceptual underpinnings, and, by almost all indications, has been successfully put into practice.

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